

Name:

Genes and Allele

Our genes contain instructions, and those instructions help to determine our traits. A trait is a notable feature or quality in a person. Each of us has a different combination of traits that makes us unique. Traits are passed from generation to generation.

There are physical traits that include hair color, eye color, and height. There are behavioral traits that are related to how an organism acts. A sheep dog's herding instinct and a retriever's desire to fetch are good examples of behavioral traits. Even though traits are determined by genes that we get from our parents that's not the whole story. The environment usually has an effect too. For example, your genes might give you brown hair, but the sun can easily change it to a lighter shade. Can you think of another example where genes and the environment interact?

So, how are traits passed on exactly?

Organisms inherit traits from their parents and pass them on to their own children. This is called heredity. Heredity helps to make you the person you are today: short or tall, with black hair or blond, with brown eyes or blue. Sexually reproducing species, including people and other animals, have two copies of each gene. The two copies, called alleles, can be slightly different from each other. Genes come from parents and only parents, but since we get one copy from each we are not exactly identical to them. Instead, we share some traits with each and sometimes offspring even have traits that weren't expressed in their parents.

1. Cross Rr x Rr below and state the probability of each outcome:

2. What do dominant and recessive mean?

3. Explain how letters can be used to show which alleles are dominant and which are recessive.